

LASER HAVING <100>-ORIENTED CRYSTAL GAIN MEDIUM

ABSTRACT OF THE DISCLOSURE

The use of <100>-oriented crystals as gain media in lasers and optical amplifiers is disclosed.

- 5 In a laser, a substantially <100>-oriented crystal, such as <100> YAG can be disposed within an optical cavity as a gain medium. The crystal is orientated such that a <100> plane is substantially perpendicular to a direction of beam propagation within the crystal. A pump source provides pumping energy to a pumped region of the crystal. The use of a substantially <100>-oriented crystal can reduce depolarization loss and thermal lens effects if an absorbed
- 10 power of the pumping energy is less than or equal to about 1000 watts of pumping radiation and/or a cross-sectional overlap between a beam of radiation propagating through the crystal and the pumped region is greater than about 20% of a cross-sectional area of the pumped region.